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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,170	03/09/2004	LeRoy E. D'Astolfo JR.	01-0221 (370108-00058)	4038

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INTELLECTUAL PROPERTY
ALCOA TECHNICAL CENTER, BUILDING C
100 TECHNICAL DRIVE
ALCOA CENTER, PA 15069-0001

EXAMINER

BELL, BRUCE F

ART UNIT

PAPER NUMBER

1746

DATE MAILED: 04/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/797,170

Applicant(s)

D'ASTOLFO ET AL.

Examiner

Bruce F. Bell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,8,10,13,14,16,17,19,21-24,26-30 and 35-40 is/are rejected.
- 7) ☒ Claim(s) 3-7,9,11,12,15,18,20,25 and 31-34 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1/24/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 10, 13, 21, 30-33 and 40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 10, 13 and 21 lack antecedent basis for the phrase "particulate connector material". It appears that the phrase should be "particulate conductor material".

Claims 30-33 lack antecedent basis for the phrase "particulate conductor material". It appears that the phrase should be "particulate connector material".

Claim 40 lacks antecedent basis for the phrase "particulate connector". It appears that the phrase should be "particulate conductor".

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 13, 16, 17, 19, 23, 30, 35 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by D'Astolfo, JR. et al (2001/0037946 or 2001/0035344).

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D'Astolfo, JR. et al both disclose an inert anode assembly having an inert anode having a cavity in which an electrically conductive rod is disposed and wherein a material is disposed within the gap between the conductive rod and the inert anode. See para [0014-0017] of US 2001/0037946) or para [0015-0017] of US 2001/0035344).

The prior art of D'Astolfo, JR et al anticipates the applicants instant invention as set forth above with respect to the instant claims. The prior art of D'Astolfo, JR et al discloses that the conductive rod is made of INCONELTM and that the cup shaped anode is made of a cermet material. A protective material is utilized between the anode cup and the conductor rod. Even though the protective material is not disclosed as being particulate in nature, one having ordinary skill in the art knows that materials unless they are in liquid form, will be of a particulate form and therefore, this aspect of the invention will be inherent in the materials used as the protective material. Therefore, the prior art of D'Astolfo, JR et al anticipate the applicants instant invention.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 8, 10, 13, 14, 16, 17, 19, 21-24, 26-30, 35-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Latvaitis et al (6,878,246).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Latvaitis et al discloses a nickel foam pin connector for an inert anode. See title. A metal foam or nickel alloy foam is disclosed for use between the hollow interior of the inert anode and the conductor pin within the inert anode. The metal foam has a density of from 5 – 40% of the solid parent metal that fills the bottom of the gap. The metal foam is preferably nickel, nickel alloy or copper alloy but coated copper foam, copper nickel foam or a variety of other metallic foams can be used that conform to the appropriate conductivity open cell network and compliancy. The metal foam may contain or be coated with other metals such as copper, nickel, silver, palladium or iridium. See col. 2, lines 9-41. The inert anode is preferably a ceramic, cermet or metal containing inert anode, the metal pin conductor is nickel or a corrosion protected steel alloy, with a nickel foam filling 100% of the resulting annular gap at the bottom, lower portion of the anode. See col. 2, lines 42-49. The top portion of the hollow interior of the inert anode is sealed at the top portion of the electrode. See col. 2, lines 51-56. The nickel foam can be inserted between the pin and the inside of the hollow inert anode, at ambient

temperatures and then sintered and sealed. See col. 2, lines 57-64. The inert anode can be sealed using one or more castable ceramic seals. See col. 4, lines 1-22. The metallic foam can be made by impregnating an open cell flexible organic foam material such as polyurethane, with an aqueous metallic slurry that contains fine metallic particles such as nickel particles. The material is dried and fired to burn out the organic materials and to sinter the metal/ceramic coating. See col. 4, lines 44-50. The foam yields a three dimensional network structure with high surface area to density and a high melting temperature over 1000⁰ C so that upon sintering or operation of the inert anode in an electrolytic process of making aluminum operating at up to about 1000⁰ C, the nickel foam can compress to provide a good fit between the metal pin outer surface and the interior electrode wall surface without drawing away from those surfaces or melting. See col. 4, line 63 – col. 5, line 6. During sintering, the ceramic or cermet shrinks, compressing the foam and securing the pin. The assembly is then sealed and no stress cracks result, whereupon the electrical conductivity improves as the foam densifies and the interface pressures increase. See col. 5, lines 14-18.

The prior art of Latvaitis et al anticipates the applicants instant invention as set forth above with respect to the instant claims.

Drawings

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Features 22, 24, and 26 in Figures 3 and 4 are not disclosed in the specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or

amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Allowable Subject Matter

7. Claims 3-7, 9, 11, 12, 15, 18, 20, 25, 31-34 are allowable over the prior art of record.
8. Claims 3-7, 9, 11, 12, 15, 18, 20, 25, 31-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach and/or suggest an inert anode assembly or a method of making an inert anode assembly, having a particulate conductor material filling a gap between the inert anode and a conductive rod having the average particle size and particle size distributions as set forth in the instant claims. The prior art further does not disclose the particulate conductor material density with respect to the theoretical density of the particulate conductor material, the gap dimension, the

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conductive coating thickness, and the outer diameter dimensions of the inert anode cup and the conductive rod.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bruce F. Bell whose telephone number is 571-272-1296. The examiner can normally be reached on Monday-Friday 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BFB
April 24, 2006


Bruce F. Bell
Primary Examiner
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